

user's manual



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NVC-601D-white
NVC-601D-black

NOVUS®

<http://www.e-camera.ro/camere-supraveghere/Novus/NVC-601D>

INFORMATION

EMC (2004/108/EC) and LVD (2006/95/EC) Directives



CE Marking

Our products are manufactured to comply with the requirements of the following directives and national regulations implementing the directives:

- Electromagnetic compatibility EMC 2004/108/EC.
- Low voltage LVD 2006/95/EC with further amendment. The Directive applies to electrical equipment designed for use with a voltage rating of between 50VAC and as well as 75VDC and 1500VDC.

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WEEE Directive 2002/96/EC

Information on Disposal for Users of Waste Electrical and Electronic Equipment

This appliance is marked according to the European 1000VAC Directive on Waste Electrical and Electronic Equipment (2002/96/EC) and further amendments. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

The symbol on the product, or the documents accompanying the product, indicates that this appliance may not be treated as household waste. It shall be handed over to the applicable collection point for used up electrical and electronic equipment for recycling purpose. For more information about recycling of this product, please contact your local authorities, your household waste disposal service or the shop where you purchased the product.

RoHS Directive 2002/95/EC



Out of concern for human health protection and friendly environment, we assure that our products falling under RoHS Directive regulations, regarding the restriction of the use of hazardous substances in electrical and electronic equipment, have been designed and manufactured in compliance with the above mentioned regulations. Simultaneously, we claim that our products have been tested and do not contain hazardous substances whose exceeding limits could have negative impact on human health or natural environment.

Information

The device, as a part of professional CCTV system used for surveillance and control, is not designed for self installation in households by individuals without technical knowledge.

The manufacturer is not responsible for defects and damages that result from improper or inconsistent with user's manual installation of the device in the system.

SAFETY REQUIREMENTS

WARNING!

THE KNOWLEDGE OF THIS MANUAL IS AN INDESPENSIBLE CONDITION OF A PROPER DEVICE OPERATION. YOU ARE KINDLY REQUESTED TO FAMILIRIZE YOURSELF WITH THE MANUAL PRIOR TO INSTALLATION AND FURTHER DEVICE OPERATION.



WARNING!

USER IS NOT ALLOWED TO DISASSEMBLE THE CASING AS THERE ARE NO USER-SERVICEABLE PARTS INSIDE THIS UNIT. ONLY AUTHORIZED SERVICE PERSONNEL MAY OPEN THE UNIT

INSTALLATION AND SERVICING SHOULD ONLY BE DONE BY QUALIFIED SERVICE PERSONNEL AND SHOULD CONFORM TO ALL LOCAL REGULATIONS

WARNING!

PRIOR TO UNDERTAKING ANY ACTION THAT IS NOT DESCRIBED FOR THE GIVEN PRODUCT IN USER'S MANUAL AND OTHER DOCUMENTS DELIVERED WITH THE PRODUCT, OR IF IT DOES NOT ARISE FROM THE USUAL APPLICATION OF THE PRODUCT, MANUFACTURER MUST BE CONTACTED UNDER THE RIGOR OF EXCLUDING THE MANUFACTURER'S RESPONSIBILITY FOR THE RESULTS OF SUCH AN ACTION.

IMPORTANT SAFEGUARDS AND WARNINGS

1. Prior to undertaking any action please consult the following manual and read all the safety and operating instructions before starting the device.
2. Please keep this manual for the lifespan of the device in case referring to the contents of this manual is necessary;
3. All the safety precautions referred to in this manual should be strictly followed, as they have a direct influence on user's safety and durability and reliability of the device;
4. All actions conducted by the servicemen and users must be accomplished in accordance with the user's manual;
5. The device should be disconnected from power sources during maintenance procedures;
6. Usage of additional devices and components neither provided nor recommended by the producer is forbidden;
7. Mounting the device in places where proper ventilation cannot be provided (e. g. closed lockers etc.) is not recommended since it may lead to heat build-up and damaging the device itself as a consequence;
8. Mounting the camera on unstable surface or using not recommended mounts is forbidden. Improperly mounted camera may cause a fatal accident or may be seriously damaged itself. The camera must be mounted by qualified personnel with proper authorization, in accordance with this user's manual;

SAFETY REQUIREMENTS

9. Device should be supplied only from a power sources whose parameters are in accordance with those specified by the producer in the camera technical datasheet. Therefore, it is forbidden to supply the camera from a power sources with unknown parameters, unstable or not meeting producer's requirements;
10. Signal cables (conducting TV or / and telemetric signal) should be placed in a way excluding the possibility of damaging them by accident. Special attention must be paid to cables getting from the camera and connecting the power supply;
11. To avoid equipment damage, whole TV circuit should be equipped with properly made discharge-, overload- and lightning protection devices. Usage of separating transformers is advised;
12. Electric installation supplying the device should be designed to meet the specifications given by the producer in such a way that overloading is impossible;
13. User cannot repair or upgrade the equipment himself. All maintenance actions and repairs should be conducted only by qualified service personnel;
14. Unplug the camera from the power source immediately and contact the proper maintenance department when the following occurs:
 - ◆ Damages to the power cord or to the plug itself;
 - ◆ Liquids getting inside the device or exposure to strong mechanical shock;
 - ◆ Device behaves in a way not described in the manual and all adjustments approved by the manufacturer and possible to apply by user himself, seem not to have any effect;
 - ◆ Camera is damaged;
 - ◆ Atypical behaviour of the camera components may be seen (heard).
15. In necessity of repairs attention to using only original replacement parts (with their parameters in accordance with those specified by the producer) should be paid. Non-licensed service and non-genuine replacement parts may cause fire or electrocution;
16. After maintenance activities tests should be run to ensure proper operation of all the functional components of the device.

Attention!

Technical changes reserved without prior notice and printing errors possible.

FOREWORD INFORMATION

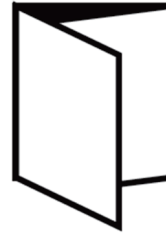
1. PACKAGE CONTENTS



Camera



Screws 3 pcs



User's manual

If any of the listed equipment has been damaged during transport or if the package is incomplete, the contents of package should be packed back in to the original box. Please contact your local NOVUS distributor for further assistance.

2. MAIN CHARACTERISTICS

- Electronical D/N function
- Horizontal resolution: up to 700 TVL
- Min. illumination: from 0.00008 lx/F=2.0
- Wide dynamic range (WDR)*
- High Light Compensation (HLC)*
- Digital Noise Reduction (DNR)
- Lens type:
 - Standard lens, f=3.6 / F=2.0
- 3-axis camera module adjustment
- Privacy zones: 8*
- Digital Image Stabilization*
- Other functions: various picture effects, motion detection*
- OSD menu, available through optional NV-RCB2 remote controller
- Enclosure color:
 - white
 - black
- 12VDC Power supply

*Functions are available by optional NV-RCB2 remote controller

FEATURES AND SPECIFICATION

3. SPECIFICATION

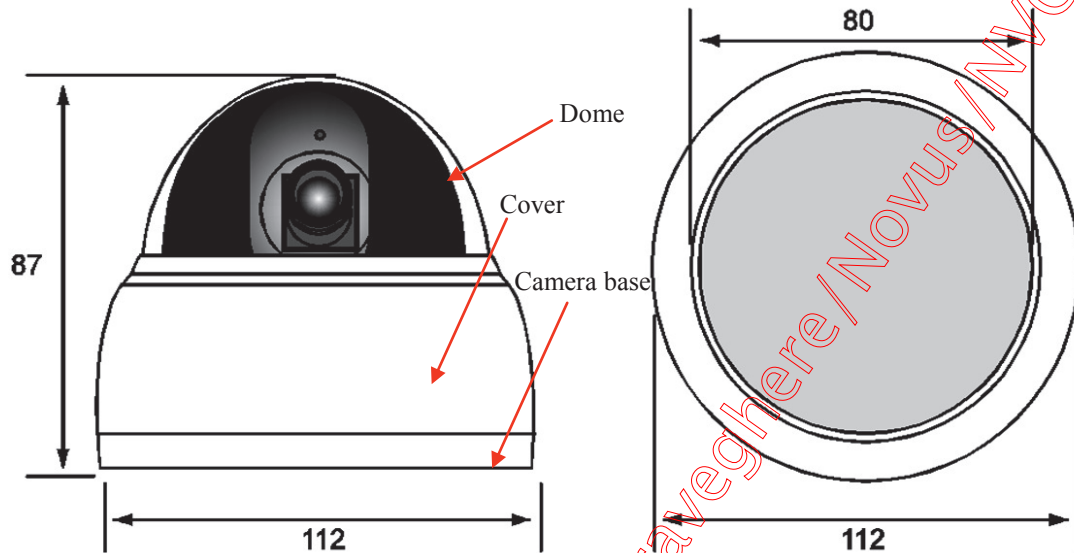
	NVC-601D-black	NVC-601D-white
IMAGE		
Pick-up Element	CCD imager, 1/3" Nextchip NEPIS-9	
Number of Effective Pixels	976 (H) x 582 (V)	
Horizontal Resolution	700 TVL - color mode, 700 TVL - B/W mode	
Min. Illumination	0.02 lx/F=2.0 - color mode (1/50 s), 0.02 lx/F=2.0 - B/W mode (1/50 s), 0.00008 lx/F=2.0 - color mode DSS, 0.00008 lx/F=2.0 - B/W mode DSS	
S/N Ratio	> 52 dB (AGC off)	
Electronic Shutter	Auto: 1/50 s ~ 1/100 000 s	
Digital Slow Shutter (DSS)	0.04 s ~ 5.12 s	
LENS		
Type	Standard, f=3.6 / F=2.0	
Angle of View (H)	73°	
DAY/NIGHT		
Type	Electronic D/N function	
Switching Mode	Auto/manual *	
Switching Level Adjustment	Yes *	
Switching Delay	0 ~ 15 s *	
OTHER FUNCTIONS		
OSD	English, Russian and others *	
Back Light Compensation (BLC)	Yes *	
High Light Compensation (HLC)	Yes *	
Wide Dynamic Range (WDR)	Yes *	
Digital Image Stabilization (DIS)	Yes *	
Digital Noise Reduction (DNR)	Yes *	
Digital Zoom	32x *	
Privacy Zones	8 *	
Motion Detection	Yes *	
Image Processing	Mirror effect, 180° image rotation, sharpening *	
INTERFACES		
Video Output	BNC, 1.0 Vp-p, 75 Ohm	
INSTALLATION PARAMETERS		
Dimensions (mm)	112 (Ø) x 87 (H)	
Weight	210 g	
Enclosure	Plastic, black	Plastic, white
Power Supply	12 VDC	
Power Consumption	1.3 W	
Operating Temperature	-10°C ~ 50°C	

*Functions are available by optional NV-RCB2 remote controller

TECH SPECIFICATION

3.1 Dimensions

Dimmenstions in mm



3.2. View of the camera, layout of the camera items (after removing the cover)



1. 12V DC and video connector
2. Standard 3.6mm lens

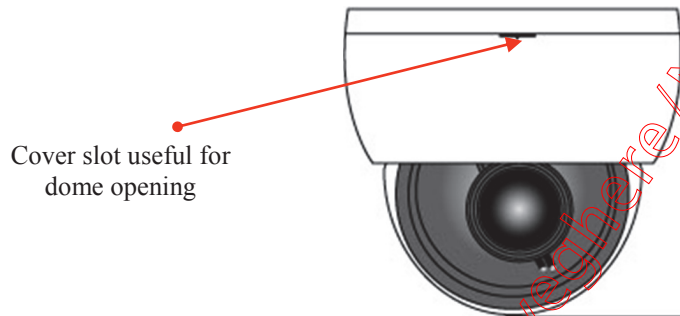
INSTALLATION

4. INSTALLATION

Prior to installation please familiarize yourself with the product, its parameters and installation process.

To install the camera please follow the instructions below:

- Open the dome cover. In order to do this small coin or screwdriver might be useful. Put the coin or screwdriver into the slot and turn gently. Pay extra attention to avoid scratching edges of the camera.



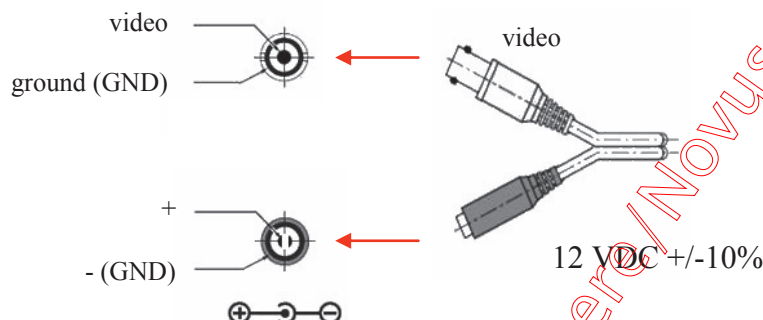
- Place base of the camera in a desired place and use its mounting holes as a drilling pattern. Mark drilling points using a punch.
- Drill the screw holes and cable hole using an appropriate driller, in case of concrete ceiling or wall mounting please use appropriate plastic plug and screws (not included in the package).
- Mount the camera to desired surface using included screws or if needed, different mounting kit (not included).
- Adjust the position of the camera module.
- If needed, unscrew the blocking screw and adjust focus.
- If needed, adjust the desired settings in the camera menu, using function button (with optional NV-RCB2 wire controller).
- Mount the camera cover by pushing it gently onto the base, until it locks. Please ensure that masking shield does not block the field of view of the camera.

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INSTALLATION

4.1 Connections

The camera is equipped with a video and power cable finished with 2 plugs, one for video output (yellow one), the other for power supply 12VDC $\pm$ 10% (red one). Images below show plug polarization.



The following connecting order should be kept:

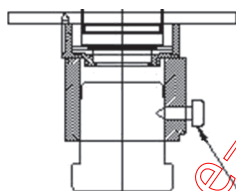
- connect video cable to the BNC plug
- connect power supply to the power plug

ATTENTION: Prior to connecting the power supply make sure that all required parameters (output voltage, output current and polarization) are correct. Using improper power supply may cause malfunction or camera damage. In such a case, warranty is void.

4.2 Focus setting

Camera focus is set by default. In some specific cases it may be necessary to correct the focus setting. In that situation please follow the instruction below .

- open the dome - as shown in chapter 4
- loose the blocking screw shown on the below picture



Allen screw blocking the lens

- to set the focus turn lens to the left or to the right
- screw on the blocking screw carefully till slight resistance is felt
- close the camera dome

ATTENTION: If the lens has signs of fingerprints or other smudges/stains, the image quality might be poor. In that case the lens should be cleaned with a special cloth designed for cleaning the optics.

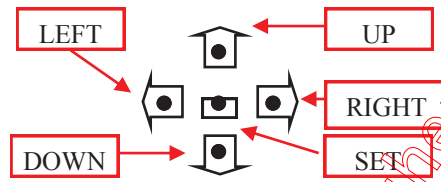
INSTALLATION

4.3 Menu (available with optional NV-RCB controller connected)

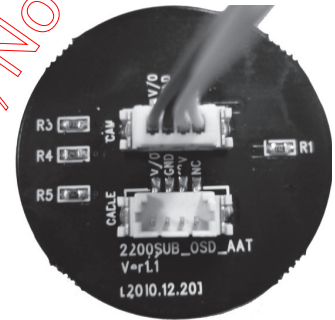
600-series dome cameras not equipped with internal joystick feature appropriate connector for plugging external NV-RCB2 joystick, as depicted below. Connecting NV-RCB2 allows to adjust various camera parameters via the OSD menu.



Video/power connector



Joystick movements and assigned functions



NV-RCB2 controller

Connecting the controller:

Caution:

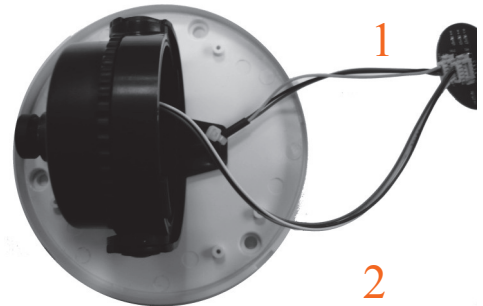
In order to avoid device damage, please plug the power off before performing any of the actions described below.



1. Disconnect video/power cable from the camera module (1) and plug controller there instead.



2. Plug the video/power camera cable to the *CABLE* socket (2)



3. Proper connections should result in system as depicted above. Video/power cable is marked (1) controller cable is marked (2).

SETTINGS

5. SETTINGS

Camera is equipped with an OSD menu. During camera operation, status information can be displayed on the screen.

5.1 Main menu

In order to enter the menu press the joystick, which results in executing **SET** command. For choosing the submenus please move the joystick into **UP**, **DOWN** positions. If the **↵** symbol is present, enter particular sub-menu by pressing **SET**. To change the parameters use the **LEFT** and **RIGHT** joystick positions. In order to leave the menu select **EXIT** and choose the option

SAVE↵ saving settings and exit menu.

RESET↵ restoring factory defaults for the camera.

CANCEL↵ exit the menu without saving changes.

To exit submenu please select **RETURN** position. Select (via left/right joystick movement) option:

RET↵ to moving to a higher-level menu.

SAVE & END↵ to saving setting and leaving the menu immediately.
and press **SET**.

In order to enter the menu, please press **SET**. The following main menu is displayed on the screen:

MAIN MENU	
▶ LENS	MANUAL ↵
EXPOSURE	↵
BACKLIGHT	OFF
WHITE BAL.	ATW
DAY&NIGHT	AUTO ↵
SMART 3DNR	ON ↵
F-DNR	OFF
FUNCTION	↵
EXIT	SAVE↵

SETTINGS

5.1.1 LENS submenu

This submenu allows to set the lens parameters:

MANUAL manual settings of the lens operating mode.

BRIGHTNESS sets brightness level in the range from 1 to 100.

DC DC auto Iris lens mode.

BRIGHTNESS sets brightness level in the range from 1 to 100.

IRIS SPEED sets iris speed in the range from 1 to 5.

VIDEO video lens mode.

5.1.2 EXPOSURE submenu

This submenu allows to set the parameters connected with AE and controlling the iris:

SHUTTER selection of shutter mode. Automatic (**AUTO**) shutter mode as well as **MANUAL** adjustment in the range 1/50s~1/100000s are available and **FLK** for flickering light conditions.

BRIGHTNESS sets brightness level in the range from 0 to 255.

AGC Automatic Gain Control function. Allows for switching between **LOW**, **MIDDLE** and **HIGH** gain values.

SENSUP Digital Slow Shutter function - helps to obtain better, brighter images in low light conditions. Longer imager exposure (from x2 to x256) causes the image to be less frequently read.

5.1.3 BACKLIGHT submenu

These compensation functions allow to enhance visibility of the objects located in the foreground, surrounded by strongly illuminated background (BLC) or for enhancing visibility of the objects located near the strong light source (HSBLC).

BLC function allows to enhance visibility of the objects located in the foreground, surrounded by strongly illuminated background. Pressing **SET** button in this mode displays the following menu:

BLC	
VALUE	MIDDLE
AREA	SINGLE ←
DEFAULT	←
RETURN	RET ←

SETTINGS

Submenu presented allows to set the size and location of the area where the **BLC** function is active, furthermore it allows to set the sensitivity of the function.

VALUE sets the function's sensitivity (LOW, MIDDLE, HIGH)

AREA allows to choose between SINGLE or DOUBLE zones, adjust the position and size

DEFAULT restores default BLC settings.

HSBLC high light compensation function. It allows to enhance visibility of the objects located near the strong, point light source. If a strong, point light source appears on the screen, function will mask it for effective observation of the scene itself (this function is best used to, for example, observe licence-plates of the cars). Selecting displays the following screen:

HSBLC	
► GAIN	---- --55
MODE	NIGHT
MASK LEVEL	-- ----25
DEFAULT	↵
M. SKIP AREA	OFF
RETURN	RET ↵

GAIN sets the function's sensitivity (from 0 to 100)

MODE ALL DAY or **NIGHT ONLY** (recommended)

MASK LEVEL defines size of masking area.

DEFAULT restores default HSBLC settings.

M. SKIP AREA turns on and allows to set size and position of area which isn't masked.

D-WDR this function allows to enable/disable wide dynamic range function that enables to effectively observe the scene with different illumination levels.

DWDR	
► LOW LEVEL	- ---- 2
HIGH LEVEL	----- 10
RETURN	RET ↵

LOW LEVEL sets the function's sensitivity for low illumination areas (from 0 to 15).

HIGH LEVEL sets the function's sensitivity for high illumination areas (from 0 to 15).

SETTINGS

5.1.4 WHITE BAL submenu

This feature allows to set appropriate color settings using following options:

ATW auto tracking white balance based on color temperature.

AWC→SET this mode enables adaptive setting of white balance. In order to obtain the optimum state under the current illumination, direct the camera at a sheet of white paper and press **SET**. When lighting parameters change (e.g. light bulbs changed to halogen lamps, daylight to artificial light etc.), procedure mentioned above should be repeated;

AWB auto white balance adjustment.

MANUAL manual mode settings. In case of inappropriate color settings for **ATW**, **AWC** modes it is possible to set **RED** and **BLUE** values manually. Color values range from 0 to 100 and are represented by sliders. Any change in the color components are instantly applied to the image.

5.1.5 D&N submenu

Allows to adjust day/night settings. Available settings are: **AUTO**, **EXT**, **COLOR**, **B/W**.

AUTO Camera switches between night (b/w) and day (color) mode automatically, depending on current illumination conditions. Selecting and confirming displays the following sub-menu:

D&N AUTO	
DELAY	--- --- 6
► D->N (AGC)	---- -- 150
N->D (AGC)	- ---- 20
RETURN	RET ←

DELAY sets the delay between color and b/w mode switching (1~15 s.).

D->N (AGC) sets the illumination threshold that switches the camera from day to night mode (0~255)

N->D (AGC) sets the illumination threshold that switches the camera from night to day mode (0~255).

EXT selecting enables day/night switching based on indications of CDS sensor. Additionally, entering the sub-menu allows to adjust **DELAY** (1~15 s.).

COLOR forces continuous color operation.

B/W forces continuous black & white operation. Selecting allows for adjusting additional values:

BURST enables/disable chrominance synchronization signal.

IR SMART function ensuring balanced brightness level of the picture during operation with an IR illuminator (which prevents overexposure of the objects located close to the camera and its illuminator). Entering the function allows to set function area and sensitivity, in the same manner as in motion detection menu.

IR LED unavailable

SETTINGS

5.1.6 **SMART 3DNR** submenu

Digital noise reduction menu allows to adjust the value and turn on/off Smart NR. Smart NR is Automatic Digital Noise Reduction which automatically change the level by detecting the movement. Turning on **SMART NR** allows to change **LEVEL** and **SENSITIVITY** of noise reduction.

SMART 3DNR	
► VALUE	---- --120
SMART NR	ON
SMART LEVEL	-- ----25
SENSITIVITY	-- ----25
RETURN	RET ←

5.1.7 **F-DNR** submenu

F-DNR (defog) function does a process of clearing blurred image caused by fog and snow by analyzing the brightness of video and colors compensation. Mode could be **AUTO** or **MANUAL**.

MANUAL mode sub-menu:

F-DNR MANUAL	
► LEVEL	---- --18
COLOR GAIN	----- 0
EDGE GAIN	----- 0
GAMMA	0.55
RETURN	RET ←

LEVEL adjust F-DNR level (from 0 to 31)

COLOR GAIN adjust color gain value (from 0 to 10)

EDGE GAIN adjust edge gain value (from 0 to 10)

GAMMA select gamma value (from 0.05 to 1.00)

AUTO mode allows to change DETECT LEVEL (from 0 to 5).

5.1.8 **FUNCTION** submenu

Selecting and entering submenu displays the following screen:

FUNCTION	
► MOTION	OFF
PRIVACY	OFF
D-EFFECT	←
IMAGE ADJ	←
COMM ADJ	←
SYNC	INT
LANGUAGE	ENGLISH
RETURN	RET ←

SETTINGS

MOTION DET. allows (provided that **ON** option is selected) to turn a built-in motion detection feature on or off. Motion detection may simultaneously be conducted in four independent zones (with their size and location selectable by user). Detection of motion displays an appropriate information superimposed on the screen.

After selecting **ON** and pressing **SET** the submenu allowing to adjust motion detection settings is displayed, as depicted below.

MOTION	
AREA	1
AREA DISPLAY	ON↵
VALUE	--- --60
MOTION VIEW	ON
RETURN	RET ↵

AREA selects the number of the area for further settings.

AREA DISPLAY turns on/off particular area. Also allows to set the position and size of the area.

VALUE refers to sensitivity (from 0 to 100)

MOTION VIEW enable / disable indication of motion detection.

PRIVACY allows to enable (by selecting **ON**) privacy zones. Part of the screen may be masked using eight rectangular zones. Selecting **ON** and pressing **SET** displays a sub-menu, containing eight masks positions.

PRIVACY	
AREA	1
AREA DISPLAY	ON↵
COLOR	--- --9
TRANSPAR	--- --2
RETURN	RET ↵

AREA selects the number of the area for further settings.

AREA DISPLAY turns on/off particular area. Also allows to set the position and size of the area.

COLOR changes color of a zone (16 available).

TRANSPAR refers to transparency of the area. (from 0 - most transparent to 3 - not transparent)

SETTINGS

D-EFFECT menu allows to set additional digital functions.

D-ZOOM allows to set the digital zoom up to x32. After entering to sub-menu it is possible to set:

RANGE magnification (from 1.0 to 32)

PAN refers to horizontal position of the picture (from -100 to 100)

TILT refers to vertical position of the picture (from -100 to 100)

SMART ZOOM allows to turn on the digital zoom up to x5.0 when the motion is detected. After entering to sub-menu it is possible to set:

RANGE magnification (from 2.0 to 5.0)

POSITION allows to set the position of magnified area

SENSITIVITY sensitivity of motion detection (from 0 to 100)

TIME sets the time of displaying magnified picture.

DIS (Digital Image Stabilisation). This function eliminates image blurring from camera shaking caused by vibrations from passing vehicles or gusts of wind.

FREEZE holds the picture in turning on moment.

MIRROR allows to change viewpoint as mirror/ rotate/ v-flip.

NEG. IMAGE enables/disables displaying of the negative video image.

IMAGE ADJ allows for enabling the additional picture effects.

SHARPNESS changes sharpness of the displayed video picture (from 0 to 31).

MONITOR selects between **CRT/LED** as used monitor, and allows to set **GAMMA**, **PED LEVEL** and **COLOR GAIN**.

LENS SHADING allows to compensate darkened areas appearing in screen corners due to lens usage. Selecting **ON** allows to enter a sub-menu, where can be adjusted:

LEVEL sets the function sensitivity (from 0 to 60)

H-CENTER refers to horizontal position of the center.

V-CENTER refers to vertical position of the center.

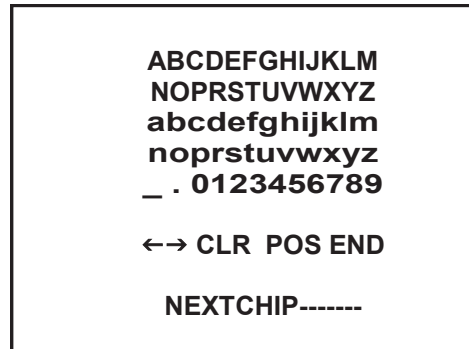
DEFECT allows to adjust parameters used in Dead Pixel Correction function. pressing **SET** displays the sub-menu allowing to adjust **SENSUP**, **DIFF**, **THRESHOLD** and then press **START** to run.

Note: White CCD pixels are not an indicator of the CCD malfunction, but are inherent consequence of the manufacturing process.

SETTINGS

COMM ADJ menu contains additional camera options.

TITLE allows to enter a string of characters that later will be displayed on the screen, e.g. as camera title.



Screen contains mainly alphanumeric characters, which may be used in camera's title. Select desired character and please apply it by pressing **SET** key. Currently edited title is visible at the bottom of the screen. A line just above it contains buttons for editing the title. To enable particular functions, please highlight them as normal characters and confirm by pressing **SET**. Button functions are described below:

- ← Moves character highlight cursor left.
- Moves character highlight cursor right.

POS adjusts the position of entered characters.

CLR erases the whole title.

END exits title editing menu.

PROTOCOL unavailable.

RS485 unavailable.

LANGUAGE switches between OSD languages: English, Russian and others.